Dr. Airy's Report to the Local Government Board on the Sanitary State of the Pembroke Urban Sanitary District.

George Buchanan,
Assistant Medical Officer,
January 15, 1879.

The Pembroke Urban Sanitary District is the Municipal Borough of Pembroke, and the Sanitary Authority is the Town Council. The population of the borough in 1861 was 15,071, and in 1871 had fallen to 13,704. The borough is divided, for municipal purposes, into two wards, Pater (or Pembroke Dock) and Pembroke, which in 1871 had a population of 9,534 and 4,170 respectively. This division is employed also in sanitary administration. Sanitary questions relating to either ward in particular are referred, in the first instance, to a committee of members of the Town Council belonging to that ward.

The Town Council, consisting of 24 members, meet once a month. For the whole sanitary district there is one Medical Officer of Health (Mr. D. P. Saer), and one Inspector of Nuisances (Mr. K. W. Ladd), who is also Borough Surveyor.

The Pembroke Urban District lies on the south side of Milford Haven, and has an irregular coast-line about seven miles in extent, but little more than two miles measured across in a straight line between its extremities, projecting into the haven in the promontory of Hobb's Point and Pembroke Dock, and re-entering on either side of that promontory along two of the sinuous creeks or "pills" (as they are locally termed) which are a characteristic feature of Milford Haven. The more southerly of these two creeks runs up to the town of Pembroke and makes it a tidal port, which is within the jurisdiction of the Milford Port Sanitary Authority. This creek, with the valley which continues it inland, makes a marked separation of the district into two portions, which correspond roughly to the two wards of the borough, the southern portion to the Pembroke ward, the northern to that of Pembroke Dock.

Geological strata.—This part of Pembrokeshire is remarkable for the repeated alternations of the geological strata of which it is formed, and for their highly contorted character. Between St. Govan's Head and the upper reaches of Milford Haven the alternation of carboniferous limestone with old red sandstone recurs four times, and the strata are found strongly tilted or even vertical. The strike of the strata, which corresponds with the direction of the ridges of the hills and the troughs of the valleys, ranges nearly east and west. The town and castle of Pembroke stand on a narrow ridge of limestone on the south side of Pembroke Creek. The strata here dip steep to the north. On the north side of the creek the rock is old red sandstone with its strata nearly vertical, forming a high ridge, at the western extremity of which, but on the northern slope of the ridge, nearly two miles distant from Pembroke, stands the town of Pembroke Dock.

These two towns of Pembroke and Pembroke Dock, which are thus seen to differ in respect of the geological formations on which they stand, differ also very widely in almost every other respect, in age, in industry, and in sanitary condition. The ancient town of Pembroke, once enclosed with its Norman castle by fortified walls, is the commercial centre of an agricultural district. Pembroke Dock has grown up in more modern times around the Government Dockyard which gives it its best-known name. It is difficult to find any point of resemblance between them or any local interest common to the two. It will be necessary to consider them separately in this Report.

Mortality.—Unfortunately there are no facilities for ascertaining separately the mortality in these two parts of the Pembroke district in past years previous to the appointment of the present Medical Officer of Health. The statistics published by the Registrar-General in the Quarterly Returns relate to the sub-districts into which the registration districts are divided. The Pembroke Registration District is divided into three sub-districts: Tenby, Pembroke, and Roose. The borough of Pembroke lies partly in the Tenby sub-district and partly in the Pembroke sub-district; the boundary between the two passes through the town of Pembroke. The sub-district returns, therefore, will not aid us to obtain estimates of the mortality in Pembroke and Pembroke Dock separately. The greater part of Pembroke and the whole of Pembroke Dock lie in the Pembroke sub-district. Indeed the borough of Pembroke furnishes four-fifths of the population of this sub-district. We may, therefore, find a rough index to the mortality of the borough in the mortality of the Pembroke sub-district. Taking the population of the sub-district as stationary since 1871 (though in the previous decennium it had fallen off by onesixteenth) the average annual death-rate in the last eight years has been 22·35 in every thousand of the population, and the death-rate from the seven principal zymotic diseases has been 2·3 per thousand.

The present Medical Officer of Health, Mr. D. P. Saer, since his appointment in March 1874, has made separate returns of the mortality in the two wards of the borough. The annual rates per thousand are given in the following table :—

——	Pembroke.	Pembroke Dock.	Whole District.
1874 - -	23·5	18·7	20·1
1875 - -	20·0	24·4	23·1
1876 - -	26·6	26·9	26·8
1877 - -	29·0	23·8	25·4
Average -	24·8	23·45	23·85

These rates are calculated on the population at the last census in 1871. Mr. Saer points out that the number of unoccupied houses in the borough has considerably diminished since 1874, and that the population must have increased. This increase has probably been confined to the Pembroke Dock division. The population of the Pembroke division is believed to have remained stationary, and there is therefore no deduction to be made from the excessively high death-rate which by the above table appears to have prevailed in that division.

In 1866 Pembroke Dock and its suburbs were severely visited by cholera. Enteric fever has prevailed in various parts of the borough year by year. Scarlet fever was very fatal in 1876 and 1877. Measles prevailed in 1877 and whooping cough in the present year 1878.

PEMBROKE.

The town of Pembroke consists chiefly of one long street of fairly well-built houses (Main Street) running along the crest of the narrow ridge of limestone rock on which the town is built. From Main Street a branch road (the road to Pembroke Dock) goes off at right angles northwards, crossing the creek by the sluice-bridge of a tide-mill, through a suburb called the Green on the north side of the creek. On either side of the ridge, immediately in rear of the houses, the ground slopes steeply, in some parts precipitously, to the valleys beneath, on the north side to the tidal mill pond and creek above described, and on the south side to a stretch of low marshy land, known as the Commons, which lies barely above high-water-mark, and is exposed to frequent floods by the swelling of a shallow brook that runs through it. The western extremity of the limestone ridge is occupied by the ruins of Pembroke Castle. The ridge here sinks abruptly to the water's edge and allows the " Commons " brook to flow into the creek. At this point the brook is crossed by a bridge leading from the western gate of the town to the suburb of Monckton on the opposite hill, the site of former monastic buildings of which some massive fragments still remain.

In Monckton, and still more at the eastern extremity of the town of Pembroke, there are dwellings of the poorest class and most wretched construction, undrained, ill-ventilated, unprotected from damp ; some letting at 9*d.* a week, and consisting each of a single room with no opening at the back, fronted by a row of middens.

At the foot of the cliff on the south side of the town there are some poor cottages without any back outlet. Their refuse is thrown out in front at the side of the Commons brook.

The " Commons " marshes under the southern scarp of the ridge, though formerly useful as contributing to the defence of the fortress, are at the present day, in a sanitary point of view, a nuisance ; for the brook by which they are frequently flooded receives a quantity of foul drainage from dwellings, stables, tanyards, and slaughter-houses, on that side of the ridge, and spreads it abroad on the marshes in time of flood. The marshes could with no great difficulty be drained, the brook embanked, and the drainage diverted by a sewer which should convey it into the tidal water below Monckton bridge.

There would be a similar drainage nuisance in the valley below the northern slope of the ridge, were it not that on this side the drainage is received in a large volume of tidal water both above and below the mill dam.

Many of the better houses in the main street have water-closets, but by far the greater number have common privies. Each occupier empties his own privy, or gets it emptied by private arrangement. There is no public provision for excrement removal. It is rare to find a privy that is not a nuisance for want of emptying. The public regulations in this respect are very imperfect. I witnessed the emptying of a privy pit into the street between 3 and 4 o'clock in the afternoon. Not a few dwellings are without any privy at all.

There is no proper system of sewerage in Pembroke. Such houses as have drains, whether for water-closets or only for slops, are drained independently to the Commons or to the mill pond. But a large proportion of the houses have no drains at all. Their slops are thrown into the ash-pit, which is a mere hole dug in the ground outside the privy and extending under the seat. Into this hole goes all the house refuse, a large proportion of which consists of the red earthy ash that results from the burning of "culm" (the anthracite coal of the country) mixed with clay. It is a habit which prevails largely in South Wales to mix together small coal and clay into fire balls as large as can be conveniently kneaded and held in two hands. These are stacked together very orderly in the front part of the fire grate, and, though slow to ignite, make at last a glowing hot long-lived fire. So prevalent is this custom that it is made the subject of a special byelaw in a code adopted by the borough in 1853, prohibiting the "mixing culm and slime or clay" on the footway or on the highway so as to occupy more than one half of its width; thereby implying that the process is sufficiently important to be allowed to obstruct a full half of the carriageway. The bulky ashes resulting from these culm fires are often sufficient, if carefully disposed, to absorb and deodorise the slops and fœcal matters in the ash-pit, but more often, from carelessness, the ashes are heaped on one side and the slops are ponded against them, forming in many instances abominable sloughs. At the Workhouse culm-ash is used to feed earth-closets. Most of the houses have good gardens stretching down the slope, and from time to time the ash-pits are emptied out and their mixed contents are put on the gardens for manure.

Pigs are largely kept. The pigstye is usually placed too near to the dwelling and sometimes adjoins the back kitchen. Privy, ash-pit, and pigstye together maintain a constant pollution of the air behind the dwelling-houses.

Water Supply.—Before 1828 Pembroke was supplied with water solely by a conduit from springs known as "Merchant's Park Springs" in the hill-side to the south of the "Commons." This supply, said to date back 300 years, is conveyed to a cistern with a public tap at the base of the public clock-tower. The overflow goes to reinforce the supply to be next mentioned.

In 1828 the Corporation obtained an Act under which they constructed two covered reservoirs in the same hill-side to the south, one called Southdown reservoir, 115 feet above mean water, the other called Dann's reservoir, at a height of 70 feet.

From these reservoirs the water is conveyed in three-inch cast-iron pipes (now much corroded), and delivered in the town at four public taps, besides being laid on to a good many private houses. Dann's reservoir is only a few feet higher than the highest point in the course of the mains along Main Street. The service-pipes to cisterns on the upper floors of private houses can only be filled under the pressure of the higher (Southdown) reservoir. This is turned on every day at a certain hour, and turned off at night. I was assured that no water-closets were served by pipes direct from the main, but only through service cisterns; still, wherever water-pipes are allowed to become empty, there is some danger of foul air entering and contaminating the main supply.

Within the last two years the supply has been further improved by including additional springs, and by protecting the springs from defilement by cattle.

The whole daily supply to the town is variously estimated at from 8,000 to 25,000 gallons. Of this about 1,000 gallons a day are taken for trade purposes by breweries and saw-mills.

There is every reason to be satisfied with the quality of the water as drawn from the reservoirs, but the quantity is insufficient, and the delivery inconvenient for many parts of the town, and the intermittent character of the private supply is objectionable.

The northern suburb called the Green is mainly supplied by a conduit from a spring called the Cold Well, brought to a public tap.

Monckton is supplied at three public taps by conduits from springs on the hill-side above, some of which are gathered into a covered reservoir ("Norgan's Hill"), and one ("St. Nicholas' Well") is independently covered and piped. The Norgan's Hill reservoir was leaking at the time of my visit, and yielded a mere dribble at the tap.

Besides the above-named conduits there are several open wells, the water of which is used for drinking purposes. One of these, called the Lady Well, is at the side of the mill pond, and is covered at high tide. It is used by persons living at the extreme east end of the town, nearly a quarter of a mile from the nearest tap. Another is at the edge of the Commons, where it is exposed to pollution of various kinds.

The Pembroke Union Workhouse, on the north side of the mill pond, is supplied with water by a pipe which at its head, as indicated to me by the Inspector of Nuisances, is within 10 yards of the privies and pigstyes of a hamlet called Golden Hill on the hill-side above. I was told that formerly there was in this place an open water-course, which has been covered over, and cottages and privies have been erected over it. The medical officer of the workhouse has noticed diarrhœa among the inmates, and has suspected the purity of the water supply. There was a severe outbreak of enteric fever with six fatal cases in one part of Golden Hill in 1876, in connexion with polluted wells. The Medical Officer of Health at that time pointed out the danger to which the workhouse water supply was exposed. Should a case of enteric fever occur in one of the cottages over the old watercourse, there would be great probability of the infection being conveyed to the workhouse, if the present arrangement of water supply remains unaltered.

In the latter part of 1876 the Town Council consulted an engineer (Mr. W. Dennis, C.E.) as to the best mode of improving the water supply for the whole borough. He advised that for the town of Pembroke two additional but more distant springs, yielding a total of 45,000 gallons a day, should be utilised, and that a covered reservoir should be constructed capable of holding 100,000 gallons. No action has yet been taken on this advice.

PEMBROKE DOCK.

The town of Pater or Pembroke Dock occupies the northern slope, abutting on Milford Haven, of the promontory of old red sandstone which stands on the north side of the Pembroke Creek. The hill is 200 feet high. The rows of houses are terraced to the very summit, and extend over the ridge in the quarter called Bufferland to the head of a ravine which descends southwards. Pennar is another detached cluster of dwellings on the hill-top, extending also down the southward slope. Llanreath is a detached hamlet on the western slope. These are all in close connexion with the town of Pembroke Dock.

The population, principally of the artizan class, numbering about 8,000, (7,793 in 1875,) are chiefly dependent on the Government dockyard establishment and on the military station at Hobb's Point. There are also large private timber yards and saw-mills in the neighbourhood of the dockyard, and below Pennar there are considerable iron shipbuilding works belonging to a private company.

The plan of the town is very regular, the streets ranging parallel to the harbour frontage, and crossed by others at right angles. The same arrangement prevails also over the crest of the hill in Bufferland and Pennar. In these two last-named places, exposed to the full force of the wind, the houses with very few exceptions have no upper floor, but consist only of two front rooms and one or two back rooms on the ground floor. The same dwarfed structure prevails some way down the hill side, but in the lower and less exposed part of the town on the more level ground the houses mostly have upper storeys, and, excepting the oldest of them, are fairly well built. The roofs are slated, and a large proportion of them are white-washed. They are, as a rule, provided with eaves-troughs and fall-pipes, by which the rain which falls on the front half of the roof is delivered on to the footway, or carried under the footway to the street gutter, while that which falls on the back half of the roof is conducted to tanks or butts for domestic use. [Allusion will be made below to these tanks in relation to water supply.] The steepness of the hill-side makes it especially important that there should be good provision for the safe and rapid escape of storm water, but I saw that one street which serves as a channel for the united surface waters from the upper part of the town, had been deeply scoured by a recent torrent of rain, and I heard the neighbours complain of it as a nuisance. The surface drainage is inefficient; many of the footways, especially in the upper parts of the town, are unpaved, and many of the streets unguttered, and in Pennar the roads which have not yet been adopted as public highways are of the roughest description.

Water supply.—One part of Pembroke Dock near the dockyard, containing 98 houses and about 540 inhabitants, is Government (Admiralty) property, and is supplied with water from two open reservoirs which also supply the dockyard. The reservoirs are filled partly from a spring which varies so rapidly with the rainfall that it is evidently nothing but a hidden surface stream, and partly from a heading driven horizontally into the hill-side. The daily supply to these reservoirs is very uncertain, varying from 1,300 to 28,300 gallons a day, but it is estimated that the amount consumed by the inhabitants on theAdmiralty property is 10,140 gallons. This would give between 18 and 19 gallons per head. Each house on the property has a tap, usually in the back yard. The water is laid on for about half an hour every morning, and the tenants store as much as they require in butts or other vessels. The utmost they could draw would probably be about 50 or 60 gallons per house, or a total of 6,000 gallons for the 98 houses. I heard no complaint of insufficiency of supply, though there is inconvenience in the intermittent mode of its service, and some risk of pollution of one of its feeders. Large demands are made on the reservoirs for the service of heavy steam machinery in the dockyard. These demands have increased in recent years, and the supply available for domestic purposes has consequently decreased. The dockyard engineer, Mr. Churchward, has thought of seeking additional supplies by driving another heading, with branches, at another point in the hill-side.

The remainder of the population obtain water—

(1.) From public springs and wells.
(2.) From private wells.
(3.) From roof-rain.

1. *Public springs and wells.*—The strata of old red sandstone of which the hill above Pembroke Dock is composed are almost vertical, and the rain which falls on the hill probably sinks rapidly to a great depth, out of reach of ordinary wells. On the hill top, however, the rain appears to be retained by a bed of clay, and while the summit of the ridge is only 203 feet high, there is a shallow well (in High Street) at a level of about 185 feet which the neighbours have never known to fail. It can only be surface water, for there are no higher hills within many miles. Other wells in the same neighbourhood, but somewhat lower, (the Cross Park, Imble Street, Cambrian Hill, and Bellevue Wells,) partake more or less of the same character, and, being situated among dwellings and very imperfectly protected, cannot be regarded with satisfaction as to probable purity. Most of them run very low in the summer. There is a spring in the town, at the top of South Park Street, at a level of 85 feet, which from its uniform flow appears to have a deeper and therefore safer source than those already mentioned. The water is gathered in a covered cistern, and drawn by tap. In times of drought this spring is much resorted to. There is also a spring ("Fortland Well") within the Barracks enclosure, on the way to Hobb's Point. The water is gathered in a well a few feet below the known situation of the spring. Part of it is used for the Barracks and Military Infirmary, and part is conveyed by a pipe to the roadside and delivered to the public at a tap in the wall of the enclosure. When the well-cover was removed there was a foul smell perceptible in the air of the well, and a few yards above the spring I found a large walled midden about 8 feet by 7. Not far distant, at a higher level than the spring, are houses, some of which have their privies close in rear. Probably the well is polluted from one or another of these sources. In dry seasons water-carts are filled at this tap, and the water hawked about the town at 1*d.* and 2*d.* a gallon.

The total yield of these public wells in dry weather is estimated at about 4,950 gallons a day.

2. *Private wells.*—These are principally found in the upper part of the town, and in Pennar. They are said to number 186, and supply 264 houses. In general they are so situated, amongst dwellings, privies, and pigstyes, that they cannot be considered safe from pollution. Some of them are highly valued by their owners, others are used only for washing purposes.

3. *Roof-rain.*—Out of a total of 1,461 houses in Pembroke Dock and Pennar (excluding the Admiralty property) 738 have each a tank for the storage of rain-water off the roof, and 44 houses have 21 tanks between them.

These tanks deserve attention, as furnishing the inhabitants of Pembroke Dock with their chief supply of water, and as an interesting example of a mode of supply which is rarely found developed to such an extent. The tank is placed at the back of the house, usually adjoining the house wall, sometimes sunk in the ground and drawn from by bucket, sometimes raised above ground and drawn from by tap. The base and walls are strongly built of stone, 18 inches thick, carefully lined with cement, and covered with slabs of slate or thick planking. The dimensions vary greatly. The largest I saw was about 12 feet long by 6 wide, and 6 or 8 feet deep. The smallest was about 4 feet every way. One of which I took a rough measure, as an example of an ordinary full-sized tank, was 11 feet by 4 and 8 feet deep in internal measurement. This would contain, say, 2,000 gallons, or 400 gallons per head for a family of five persons. Allowing 20 gallons per head per day, the tank would hold 20 days' supply, but considering that there are no baths or water-closets to be served, it is probable that not more than 10 gallons per head, possibly not more than 5, would be used in a day, and in that case the supply would last from 40 to 80 days, and would tide over the longest drought known in this part of the country. The average annual rainfall, gathered from a comparison of observations made at various points in this part of Pembrokeshire, is about 40 inches. This rainfall on a roof covering 10 square yards of floor would give one person about 5 gallons a day. Five persons would require a roof covering 50 square yards of floor to give each person 5 gallons a day, or 100 square yards to give each person 10 gallons a day. I have before said that only the rain on the back slope of the roof is carried to the tank. This in the smaller houses might give a gathering area of 15 to 25 square yards, reducing the supply for five persons to 1½ or 2½ gallons per head per day. The larger houses might often command 5 gallons per head per day, and if the whole of the roof were utilised, they might command as much as 10 gallons. The purity of the water depends on the cleanness of the air, the cleanness of the roof and eaves-gutters, and the conservation of the tank. The air is comparatively free from smoke and smoke-acids, and the rainy winds from the Atlantic bring no organic matter with them. On the roof and in the trough the only impurities are whitewash, town dust, dead leaves, and birds' droppings. Small quantities of these are, no doubt, carried into the tanks, though they could be easily arrested by a flannel bag or some other simple filter attached to the foot of the fall pipe. In few houses is the water filtered before being used. Practically, if care is taken to clean out the tank from time to time and to keep its covering in good order, the water remains not indeed chemically pure, but fairly potable and at least not liable to the principal risk which affects well-water,—the risk of being made poisonous by the infiltration of human fœcal matter. When the tank cover is composed of close-fitting slabs of slate or stone and no soil or rubbish is allowed to accumulate on the top, the water keeps pretty good, but in very many instances the cover is of wood rudely laid, earth accumulates and weeds grow on it, the wood decays, and fragments of it fall in along with various surface rubbish, and the water is rendered impure. Probably it would be found that half the tanks are imperfectly covered, some leak, and others fail through defect in the eaves-gutters. It is only in a very small proportion of cases that the tanks can be said to give a proper supply both in quantity and quality.

During drought in the summer of 1876 the Medical Officer of Health caused an examination to be made of the tanks in Pembroke Dock, and it was then found that 245 of them " were empty or only contained dregs, and, had the dry weather continued " another week, the number would have increased to probably 500."

Deducting, from the total of 1,461, 264 houses supplied by wells, and 782 supplied by tanks, there remain 415 houses without either tank or well. Most, if not all, of these have some contrivance for catching and storing a modicum of rain-water. In dry seasons their occupants resort to the public taps or to more fortunate neighbours.

I have taken the numbers of houses, wells, and tanks from special detailed reports of the Medical Officer of Health and Inspector of Nuisances, made by order of the Sanitary Authority in 1875. From my own observation I can vouch for the general accuracy of those reports as representing the state of things that exists at the present time. Those reports were referred to the Sanitary Committee for Pater Ward, who made a counter-report in May 1876 that they had " ascertained that nearly all the houses " have tanks, by which an ample supply is secured to those houses during the whole of " the year."

It is difficult to see how this counter-statement can be supported in face of the facts detailed by the sanitary officers of the Authority. The need of a largely-increased and better protected water supply is manifest, and cannot be seriously questioned.

It will be remembered that in 1875 this need was strongly insisted upon by Col. Cox in connexion with an inquiry relating to a new market-place.

About 20 years ago, during prolonged drought, the inhabitants held a meeting, raised subscriptions, and commenced sinking a shaft some way up the hill-side, in search of water. The work was suspended in expectation of influential help, and finally abandoned when rain fell. Since then no active steps have been taken in the matter.

Mr. Dennis, the engineer whom the Town Council consulted in the latter part of 1876, advised that a deep well should be sunk at the summit of the hill above Pembroke Dock, and carried down to mean tide level, and that headings should be driven north and south from the bottom of the shaft, intercepting and cutting across the fissures in the sandstone rock. Steam pumping machinery would be required to raise the water to a covered service reservoir, from which the whole town, except High Street, would be supplied by gravitation. For High Street Mr. Dennis proposed a stand-pipe or a small elevated tank.

Drainage.—In the lower part of one of the streets descending towards the Haven there is a sewer which takes surface water and the discharge from a few water-closets which are connected with it. With this exception, in the whole of Pembroke Dock, exclusive of the Admiralty and War Office properties, there is no drainage at all. The slops from the houses are poured, with all other refuse, into the ash-pit beside the privy at the end of the garden, and necessarily give rise to abominable nuisances. In most cases the gardens of one row of houses abut immediately on those of the nearest row in the next parallel street. In these cases the contents of the ash-pit, if not disposed of on the garden, can only be removed through the dwelling-house. This causes much nuisance. In the newest quarter of the town the garden-ends are accessible on either side from a (private) back lane which divides them, and the refuse can be removed without passing through the house. The back lane, however, is frequently made the receptacle of heaps of refuse which it is nobody's business to take away.

There are public scavengers who twice a week keep the streets fairly clean, though an instance has been known in which a heap of ash-pit stuff has been left two days in the public road.

In Pembroke Dock, as in Pembroke, common privies are almost universally in use, often in conjunction with pigstyes. There are a few water-closets which (excepting those near the sewer above mentioned) are drained into cesspools in the gardens, sometimes close to the dwelling, and giving rise to great nuisance.

Slaughter-houses.—There is much complaint of the nuisance attending the slaughtering of animals at 12 butcheries in Pembroke Dock. An inspection of them was made in October 1877 by the Inspector of Nuisances, and a detailed report made to the Sanitary Authority. In the summary of that report he states, " For the most part the " slaughtering places are within 40 feet of the dwelling-house, the floors are not " properly paved,—indeed in most cases are very rough,—the blood and liquid manure " penetrating through the joints and interstices of the paving . . . Very few of " the slaughtering places have an adequate supply of water . . . There are no " pipe drains to any one of them." This description is equally true at the present time. Slaughtering cannot be carried on in the town without creating nuisance.

A public slaughter-house has been provided at Bufferland, inconveniently distant, on the crest of the hill above the town. Oxen are mostly slaughtered there, but large numbers of sheep and pigs are killed in the town.

The Sanitary Authority have only recently adopted byelaws for the regulation of slaughter-houses.

Admiralty Property.—I have alluded to a certain quarter near the Dockyard, containing 98 houses, the property of the Admiralty. The state of this property was made the subject of complaint in 1876 (repeated in June 1878) by the Fleet Surgeon resident at Pembroke Dock, especially in regard of drainage, construction of houses, paving of yards, state of privies and cesspools, and butcheries. This report, as also a report by the engineer of the dockyard, was referred to the Local Government Board, and, together with information received through the Board's Inspectors, gave occasion to the present inquiry into the sanitary condition of the whole sanitary district.

The water supply of this quarter of the town has been already described. The privy accommodation found here is similar to that met with in other parts of the town. The butcheries complained of still remain, though it is said there is less slaughtering done in them now than formerly. In 1865 the Admiralty contributed 750*l.* towards the erection of the public slaughter-house outside the town, the Corporation undertaking to suppress the nuisance of slaughtering in private premises on Admiralty property. That undertaking has not yet been fulfilled on the part of the Corporation.

The houses on Admiralty property differ from the rest of the town not only in water supply, but also in having a system of drainage. Each row has a rudely constructed stone drain running along under the back-yards, in each of which there is an untrapped sink-hole where slops are thrown and whence foul smells arise. The yards are rudely paved and slop-water lodges among the stones. These drains meet in a sewer which passes through the dockyard enclosure and falls into the Haven on the western side of the yard. Some of the butcheries above mentioned and a few water-closets are connected with the drains. The limited water supply does not allow of the drains being properly flushed, and it is certain that they do not properly carry off their contents, for the Inspector of Nuisances reported one instance in which the liquid filth came up from the drain and overflowed the floor of one of the kitchens. On being opened, the drain was found quite full of solid matter.

I was told that in the leases under which these houses were built the responsibility of cleansing and repairing the drains rests with the lessees, the Admiralty retaining the right of entering upon the premises frequently for purposes of examination.

It is not denied that the state of this property, while still under the control of the Admiralty, before it passed, in 1875, under the sanitary jurisdiction of the Town

Council, was as bad as, or even worse than, it is now. Nevertheless, the Town Council as Urban Sanitary Authority should now see that this quarter, together with the rest of the town, is put in proper order.

With reference to the whole sanitary district, it is to be noted that there exists no hospital to which the Sanitary Authority could remove persons suffering from infectious disease. This want was brought to the notice of the Town Council in 1876, but without any good result. In that year there were 102 deaths from scarlet fever in the borough. If the earliest cases of that epidemic could have been isolated in such a hospital as this borough ought to possess, there would have been good hope of checking the spread of the disease at the very outset.

The Sanitary Authority have no byelaws regulating the building of houses, &c., nor any sanitary byelaws whatever except those recently adopted for the regulation of slaughter-houses, and one or two clauses in a Code dated 1853, relating chiefly to obstructions of the public ways. One clause in that Code requires the abatement of a nuisance, provided the Mayor or any two members of the Watch Committee upon sight or inspection thereof shall deem the same to be a public nuisance. This, I need hardly say, has been superseded by Acts of Parliament passed since that date.

I cannot conclude this Report without calling attention to the imperfect degree in which the majority of the Town Council appear to realise their responsibility, as the Local Sanitary Authority, for the sanitary well-being of the large population under their charge. With the exception of the public slaughter-houses for Pembroke and Pembroke Dock, the new market place for the latter, some little improvement of the water-supply for the former, and certain works of paving, kerbing, &c., I cannot find that any real sanitary work has been performed in recent years beyond the ordinary scavenging of the streets and procuring the abatement of conspicuous nuisances. The Medical Officer of Health and Inspector of Nuisances have kept the Authority truthfully informed of the sanitary requirements of the district, but for the most part the Authority have disregarded their officers' reports and have made no endeavour to deal with the large defects therein revealed to them.

HUBERT AIRY, M.D.

RECOMMENDATIONS.

1. The Sanitary Authority should take steps to make the water-supply for the town of Pembroke adequate to the wants of the population, and to provide the town of Pembroke Dock with an ample supply of pure water.
2. The towns of Pembroke and Pembroke Dock with their suburbs should be properly drained. The old drains on the Admiralty property require to be re-laid with socket-pipes, properly ventilated; and the yard sink-holes properly trapped.
3. The Commons Marsh should be drained, and the brook should be embanked. No drainage should be allowed to enter the brook.
4. It is greatly to be desired that throughout the district some safer mode of excrement disposal should be introduced than the present privy-and-pit system, which is productive of dangerous nuisance. For information on this subject the Sanitary Authority are referred to the office Report "On certain means of preventing "Excrement Nuisances in Towns and Villages." Privy nuisances require to be more strictly repressed.
5. Slaughtering should be prohibited in the towns, and sufficient public accommodation for the purpose should be provided elsewhere.
6. The Sanitary Authority should have ready a suitable place, suitably furnished, to which they could on the shortest notice remove persons suffering from infectious disease.
7. The Sanitary Authority should adopt new byelaws for their district, regulating especially the building of houses, the laying of drains, &c., and prohibiting the keeping of pigs within a certain distance of dwellings. The model byelaws issued by the Local Government Board should be sent to them forthwith for their consideration.

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